

*lanthus rigidus* (Benth.) Jeps. (Orobanchaceae) (also a new food plant for the species) and *Plantago erecta* during the springs of 1999 and 2001 (GFP pers. obs.). Recent molecular studies suggest these food plants (*Cordylanthus* and *Plantago*) are more distantly related (separate families) than are *Antirrhinum* and *Plantago* (same family) (Olmstead et al. 2001). The food plant therefore may not be the most important character used to distinguish *Euphydryas editha* sub-species.

Alison Anderson, Greg Ballmer, Dave Hawks, Guy Bruyca, Chris Nagano, Brenda McMillan, and John Emmel have provided information on present and historical populations. Cecilia L. Pierce assisted the senior author on much of the fieldwork. We thank Fred Sproul for finding and providing information on the newly discovered San Vicente Reservoir population, Steve Meyers, Chet McCaugh, and Mike Wilcox for finding and providing information on a population north of Anza, and Sam Reed for providing information on a population southwest of Anza. We thank Andy Sanders for all of the plant identifications. We also thank Bob Luck for all of his help and support. This research was largely supported by a Fish and Game grant with the account title of CDFG FG7182ES LUCK 6/98.

#### LITERATURE CITED

GARTH, J. S. & J. W. TILDEN. 1986. California butterflies. University of California Press, Berkeley, California, 246 pp.

- MATTONI, R., G. F. PRATT, T. R. LONGCORE, J. F. EMMEL & J. N. GEORGE. 1997. The endangered quino checkerspot butterfly, *Euphydryas editha quino* (Lepidoptera: Nymphalidae). J. Res. Lepid. 34:99–118.
- OLMSTEAD, R. G., C. W. DEPAMPHILIS, A. D. WOLFE, N. D. YOUNG, W. J. ELISONS & P. A. REEVES. 2001. Disintegration of the Scrophulariaceae. Amer. J. Bot. 88 (2):348–361.
- ROGERS, J. G. 1997. Endangered and threatened wildlife and plants: determination of endangered status for the Laguna Mountains skipper and quino checkerspot butterfly. Federal Register January 16, 1997 Vol. 62:2313–2322.
- SINGER, M.C. 1971. Evolution of food-plant preference in the butterfly *Euphydryas editha*. Evol. 25:383–389.
- . 1972. Complex components of habitat suitability within a butterfly colony. Science 176:75–79.
- . 1982. Quantification of host preference by manipulation of oviposition behavior in the butterfly *Euphydryas editha*. Oecologia 52:224–229.
- WHITE, R. R. 1974. Food plant defoliation and larval starvation of *Euphydryas editha*. Oecologia 14:307–315.

GORDON F. PRATT, *Department of Entomology, University of California, Riverside, California 92521, USA*, ERIC W. HEIN, *1515 Cassidy Street, Oceanside California 92054, USA*, and DOUGLAS M. KROFTA, *1361 Bluegrass Rd, Vista, California 92083, USA*

Received for publication 8 January 2000; revised and accepted 22 October 2001.

*Journal of the Lepidopterists' Society*  
55(4), 2001, 171–174

### PRECEDENCE OF *CATOCALA LOUISEAE* BAUER, 1965 AS A NOMEN PROTECTUM OVER *CATOCALA PROTONYMPHA* BOISDUVAL, 1840 (NOCTUIDAE)

**ABSTRACT.** The name *Catocala protonympha* Boisduval has heretofore been considered a junior synonym of the Palearctic species *Catocala fulminea* Scopoli. Examination of Boisduval's type and relevant literature demonstrates that *Catocala protonympha* is in fact a disused senior synonym of the Nearctic species *Catocala louiseae* Bauer. Article 23.9.2 of the Code is invoked to give precedence to the established name *Catocala louiseae*, and maintain nomenclatural stability in the genus.

**Additional key words:** taxonomy, synonymy, types, Boisduval, Guenée, Staudinger, Culot.

In 1840, J. A. Boisduval described a new species of *Catocala* Schrank (1802) as *Catocala protonympha*, as follows: "Species distinctissima antennis crassioribus dentatis; statura *Callinympha*; alae posticae fere ut apud jam dictam; anticae cinereo-fuscae fasciis vix angulosis" [A species very distinct, by thick dentate antennae; size of *callinympha*; hindwings about the same as with those I have already described; forewings ash grey-brown with bands slightly angled]. The type locality was listed as "P." [=Paris, France].

Guenée (1852:103) figured *protonympha* on his Plate 15, Fig. 2, comparing it to *Catocala paranympa* L., which is a synonym of the widespread Palearctic species *Catocala fulminea* (Scopoli 1763), and stated "Environs de Paris, en aout. Coll. Bdv. Un ♂" [vicinity of Paris, in August. Collection of Boisduval. One male].

Guenée's original illustration of *Catocala protonympha* is reproduced here in Fig. 1c. Guenée also remarked on the apparent extraordinary rarity of *protonympha*: "C'est jusqu'ici, une des plus grandes raretes. Pourtant, M. Begrand m'a affirme avoir vu, sur un mur, au bois de Boulogne, une certaine quantite de petites *Catocala* jaunes qui ne pouvaient appartenir qu'a cette espece, la *paranympa*, avec laquelle la confusion est impossible" [Up to now, it is one of the great rarities. However, Mr. Begrand is positive about having seen a certain number of small yellow *Catocala* on a wall in the Boulogne woods, they necessarily belonged to the species *paranympa* with which no confusion is possible].

Subsequently, *Catocala protonympha* was listed with questionable provenience by Berce (1870:242): "est regardée comme douteuse par beaucoup de lépi-

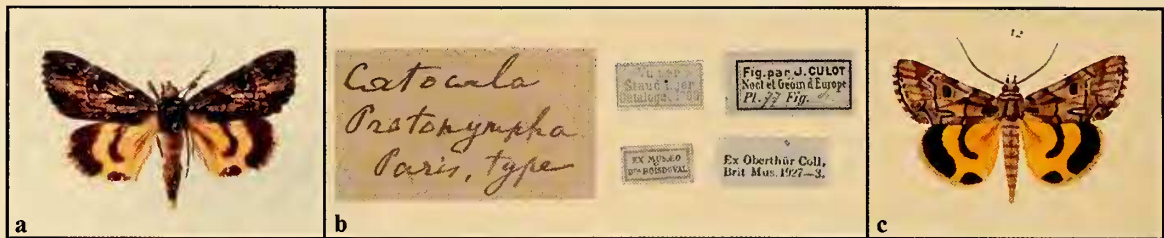


FIG. 1. *Catocala protonympha* Boisduval 1840. **a**, male type in the Natural History Museum (London), approx. 3/4 size. **b**, specimen labels on the type. **c**, painting of the type by Guenée (1852).

doptéristes” [is seen as doubtful by many lepidopterists], and the possibility of a hybrid or misattributed specimen was raised by Staudinger and Wocke (1871:138): “uno ♂ condita; an Eutychea al. posterioribus Hymenaeae adulterata? an sp. exotica?” [one male preserved; is it *eutychea* or otherwise from descendants of a cross with *hymenaea*?; or an exotic species?]. Despite the fact that Guenée’s illustration of *protonympha* does not resemble *Catocala fulminea* in either size or pattern, Staudinger and Rebel (1901:249) later placed *protonympha* as a dwarfed aberration of *fulminea*, believing then that Guenée’s illustration was wanting: “t. 15, f. 2 [fig. non quadrat bene]; (sec. specim. typ. Stgr. ab. nana esse videtur)” [the figure does not agree well; according to the type specimen of Staudinger from which it seems to be dwarf]. Both Spuler (1908) and Hampson (1913) also treated *protonympha* as an aberration of *fulminea*, and in the Seitz (1913:319) volume on Palearctic noctuids, Warren treated *protonympha* as a form of *fulminea*. The Seitz figure of *protonympha* is nearly identical to the Seitz figure of *fulminea* (both appear on Plate 57 row D), the former differing from the latter only nominally in having the hindwing ground color lighter and the hindwing medial band somewhat reduced.

Culot (1913:201–203, Plate 77, Fig. 4) refigured Boisduval’s type of *protonympha*, and correctly pointed out that the type did not at all resemble the Seitz figures of *protonympha* or *fulminea*. Although Culot clearly felt *protonympha* and *fulminea* were different, and that some sort of error might be involved, he left the taxonomic position of *protonympha* unchanged, as he was unable to resolve fully the puzzle that Boisduval’s specimen presented:

“Quant a la soi-distant forme *protonympha* Bdv., elle parait etre fort peu connue des entomologistes et ne correspond en aucune facon a l’exemplaire reproduit soue ce nom sur la Planche 57, ligne D, de l’ouvrage de Seitz. Pour ma part, je trouve la *protonympha* Bdv. si differente de *fulminea* qu’il

me parait temeraire de la rattacher specifiquement a cette derniere. Grace a la si large obligeance de mon ami M. Charles Oberthur, j’ai le plaisir de figurer ici le type *protonympha* de Boisduval. . . . En resume, je vois dans la *protonympha* Bdv. une espece tres particuliere, don’t on ne connait que le seul exemplaire ♂ figure ici et qui fut capture aux environs de Paris. C’est un cas evidemment fort rare en entomologie, mais a moins qu’il ne s’agisse d’une erreur don’t j’ignorerais la source, je ne puis trouver aucune autre solution.” [As for the so-called form *protonympha* Bdv., it seems to be mostly unknown to entomologists and in no way corresponds to the example presented under this name in Plate 57, line D of Seitz’ work. As far as I am concerned, I consider *protonympha* Bdv. to be so different from *fulminea* that it seems farfetched to relate it specifically to that species. Thanks to the kindness of my friend Charles Oberthur, I have the pleasure to illustrate here the type of *protonympha* by Boisduval. . . . In short, I see in *protonympha* Bdv. a very particular species of which only one male specimen, illustrated here, is known and that was captured around Paris. It is naturally a case seldom seen in entomology, but I cannot think of any other solution except for a mistake that I cannot explain].

Despite Culot’s misgivings, in later systematic works the name *protonympha* has also been listed as a synonym of *fulminea* (e.g., Lhomme 1923–1935, Poole 1989, Hacker 1990), or has been omitted from the synonymy of *fulminea*, even in works covering France or nearby areas (e.g., Bergmann 1954, Forster & Wolfhart 1971, Leraut 1980). The most recent use of the name *protonympha* as a valid species name appears to be by Staudinger and Wocke (1871).

In 1965, Bauer described *Catocala louiseae* as a new Nearctic species from Florida. This local and generally uncommon *Catocala* occurs primarily in the southeastern United States, from North Carolina to Florida and



westward along the Gulf Coast to Texas. The name *louiseae* has been used exclusively for this species, having appeared in catalogues treating Nearctic (Hodges 1983) and Holarctic Noctuidae (Poole 1989), a book devoted to *Catocala* (Sargent 1976), a moth field guide (Covell 1984), the experimental zoological literature (Gall 1991), regional surveys and compilations (Cromartie & Schweitzer 1997), and in numerous shorter reports on *Catocala* distributions and life histories in the News of the Lepidopterists' Society and the Southern Lepidopterists' News (e.g., Baggett 1994, Neal 1999).

We recently located Boisduval's type specimen of *Catocala protonympha* at the Natural History Museum, London in one of the "miscellaneous" type drawers. The male type (Fig. 1a) bears the following labels (Fig. 1b): "Catocala/protonympha/Paris, type"; "Vu par/Staudinger/Catalogue 1900"; "Fig. par J. CULOT/Noct et Geom d'Europe/Pl. 77 Fig. 4"; "EX MUSAEBO/BOISDUVAL"; "Ex Oberthur Coll./Brit. Mus. 1927-3." The type is in fact a specimen in good condition of *Catocala louiseae*, and not an aberrant dwarfed specimen of *Catocala fulminea*.

Because the name *protonympha* actually refers to a local and generally uncommon Nearctic *Catocala* species, this explains prior lepidopterists' difficulties in placing *protonympha* as a Palearctic taxon, and the absence of any Palearctic specimens other than Boisduval's type. The type locality of Paris, France for *protonympha* is undoubtedly erroneous, and likely the result of a labeling error or other misattribution. Boisduval's type could even be one of John Abbot's 18th or early 19th century Lepidoptera specimens from Georgia, as *Catocala louiseae* inhabits the counties in Georgia where Abbot worked, and Abbot did depict *louiseae* in one of his unpublished watercolors in the Oemler compilation at the Houghton Library at Harvard University (the Francillon compilation of Abbot's unpublished watercolors at the Natural History Museum, London does not contain a painting of *louiseae*). Note that even though Guenée's illustration of *protonympha* is stylized, it matches the type well, and is nevertheless recognizable as *louiseae*. Staudinger and Rebel's (1901) mischaracterization of Guenée's illustration seems all the more peculiar in light of the data label that indicates Staudinger examined Boisduval's specimen, and especially since Staudinger and Wocke (1871) initially felt that *protonympha* might not be a Palearctic species.

Thus, the name *protonympha* Boisduval (1840) has been mistakenly tabulated throughout the 20th century in the Palearctic *Catocala* literature as a junior subjective synonym of *fulminea* Scopoli (1763). The name *protonympha* has never appeared in the Nearctic *Catocala* literature, and reintroducing the name

*protonympha* for *louiseae* Bauer (1965) would upset established nomenclatural usage. Since the provisions of both Articles 23.9.1.1 and 23.9.1.2 of the Code appear to be met, the name *Catocala louiseae* Bauer (1965) is hereby given precedence per Article 23.9.2 as a **nomen protectum** over its disused senior subjective synonym *Catocala protonympha* Boisduval (1840), which becomes a **nomen oblitum**.

We thank Martin Honey for his hospitality at the Natural History Museum (London), and for providing access to specimen material there. Julie Harvey, Michael Pogue and John Rawlins chased down several literature leads. Louis Hanfield assisted with the French translations, and Stephanie Spaulding, Leo Hickey and Victor Bers with the Latin. Don Lafontaine offered helpful comments on the manuscript.

#### LITERATURE CITED

- BACCETT, H. D. 1994. Current zone reports. Zone IV Florida. News So. Lepid. Soc. 16:14.
- BAUER, J. 1965. A new *Catocala* from Florida (Lepidoptera: Noctuidae). Entomol. News 76:197-198.
- BERCE, J. E. 1870. Faune Entomologique Française Lepidopteres. Quatrieme Volume: Heterocerces, Noctuae. Chez Deyrolle Fils, Paris. 256 pp.
- BERCMANN, A. 1954. Die Grossschmetterlinge Mitteldeutschlands. Band 4/2. Eulen. Urania-Verlag, Jena. 479 pp.
- BOISDUVAL, J. B. A. D. DE. 1840. Genera et Index Methodicus Europaeorum Lepidopterorum. Roret, Paris. 238 pp.
- COVELL, C. V. 1984. A field guide to the moths of eastern North America. Houghton Mifflin, Boston. 496 pp.
- CROMARTIE, J. & D. F. SCHWEITZER. 1997. *Catocala louiseae*, *C. grisatra* and *C. jair* (Lepidoptera: Noctuidae) in North Carolina. Entomol. News 108:389-390.
- CULOT, J. 1913-1917. Noctuelles et Geometres d'Europe. Premiere Partie. Noctuelles. Vol. 2. Oberthur, Rennes. 243 pp.
- FORSTER, W. & T. A. WOHLFART. 1971. Die Schmetterlinge Mitteleuropas. Eulen (Noctuidae). W. Keller, Stuttgart. 329 pp.
- GALL, L. F. 1991. Evolutionary ecology of sympatric *Catocala* moths (Lepidoptera: Noctuidae). III. Experiments on female oviposition preference. J. Res. Lepid. 29:217-233.
- GUENÉE, A. 1852. Histoire Naturelle des Insectes. Species General des Lepidopteres. Tome Septieme, Noctuelites, Tome 3. Roret, Paris. 441 pp.
- HACKER, H. 1990. Systematische und synonymische Liste der Noctuiden Deutschlands und der angrenzenden Gebiete. Esperiana:5-165.
- HAMPSON, G. F. 1913. Catalogue of the Lepidoptera Phalaenae in the British Museum. Volume 12. Taylor & Francis, London. 626 pp.
- HODGES, R. W. 1983. Check list of the Lepidoptera of America north of Mexico. Univ. Press, Cambridge. 284 pp.
- LERAUT, P. 1980. Liste systématique et synonymique des lépidoptères de France, Belgique et Corse. Alexanor 13 (supplement):1-334.
- LHOMME, L. 1923-1935. Catalogue des Lepidopteres de France et de Belgique. Volume I. L. Lhomme, Paris. 800 pp.
- NEAL, T. 1999. State Coordinator reports. Florida. News So. Lepid. Soc. 21:34.
- POOLE, R. W. 1989. Noctuidae. Part 3. Lepidopterorum Catalogus (N. S.), Fasc. 118:1015-1314.
- SARGENT, T. D. 1976. Legion of night: the underwing moths. Univ. Massachusetts Press, Amherst. 222 pp.
- SCHRANK, F. P. 1802. Fauna Bioica. Durchgedachte Geschichte der in Baiern Einheimischen un Zahmen Thiere. Zweyter Band. Zweyte Abthilungen. Krull, Ingolstadt. 173 pp.
- SCOPOLI, J. A. 1763. Entomologia Carniolica Exhibens Insecta Carnioliae Indigena et Distributa in Ordines, Genera, Species,

- Varietates Methodo Linnaeana. Joannis Thomae Trattner, Wien. 418 pp.
- SEITZ, A. 1909–1914. Die Gross-Schmetterlinge der Erde. Die Gross-Schmetterlinge des Palaearktischen Faunengebietes. Band 3. Die Eulenartigen Nachtfalter. Alfred Kernen, Stuttgart. 511 pp.
- SPULER, A. 1906–1908. Die Schmetterlinge Europas. Band I. Allgemeiner Teil. Spezieller Teil. E. Schweizerbache, Stuttgart. 385 pp.
- STAUDINGER, O. & H. REBEL. 1901. Catalog der Lepidopteren des Palaearctischen Faunengebietes. I. Theil: Famil. Papilionidae-Hepialidae. R. Friedlander & Sohn, Berlin. 411 pp.
- STAUDINGER, O. & M. WOCKE. 1871. Catalog der Lepidopteren des Europaeischen Faunengebiets. [No publisher given], Dresden. 426 pp.
- LAWRENCE F. GALL, *Entomology Division, Peabody Museum of Natural History, Yale University, New Haven, Connecticut 06520, USA*, and DAVID C. HAWKS, *Department of Entomology, University of California Riverside, Riverside, California 92521, USA*

*Received for publication 7 November 2001; revised and accepted 21 November 2001.*